Clean Air Facts

about the State Hazardous Air Pollutant Rule in Chapter NR 445

SBCA-HAP-0800

The Wisconsin Department of Natural Resources (DNR) Air Program's state hazardous air pollutant rule, in ch. NR 445 of the Wisconsin Administrative Code, became effective in 1988. The intent of the rule was to address concerns about health effects from toxic air releases, prevent public health problems from occurring, and to fill the gap left by the stalled federal toxics program.

Who is Affected By Ch. NR 445?

Chapter NR 445 affects any facility that was operating in 1988 and any new processes or facilities that started operating after 1988, and which emit any one of the hazardous air pollutants (HAPs) listed in the rule. Most affected facilities have already been reviewed by DNR for HAP emissions under ch. NR 445. When facilities add new processes DNR reviews compliance at the whole facility for those HAPs emitted from the new project. Facilities should be aware of the NR 445 requirements as they report on emissions of those HAPs for the emission inventory under NR 438 (which you may also know as air portion of the Consolidated Reporting System).

Exemptions from NR 445

The exemptions from NR 445 are specific to each of the five tables (labeled as Tables 1, 2, 3A, 3B, 4 and 5) in that chapter. The types of emissions or sources exempted are:

- From combustion of natural gas, LP gas, distillate fuel oil, gasoline and diesel fuel (all but Table 2 HAPs).
- From combustion of coal and residual fuel oil if the stack meets specific criteria (all but Table 2 HAPs).
- From laboratories (All Tables).
- From indoor fugitive emission sources, under certain conditions (for Table 3 and 5 compounds the facility must also meet OSHA standards for the HAPs).
- From sources meeting a federal MACT standard issued before January 1, 1995 (Table 5 only).
- From gasoline dispensing facilities, depending on size (Tables 3 and 5).

What Does a NR 445 Review Entail?

The tables in ch. NR 445 are separated based on the health affects of the pollutants in the table:

- Table 3A are known carcinogens;
- Table 3B are possible carcinogens;
- Tables 1, 4 and 5 are compounds that pose acute or chronic health concerns; and
- Table 2 contains only those non-carcinogenic chemicals released during manufacture or processing of pesticides, herbicides, etc.

Examples of the acute or chronic health concerns are respiratory inflammation, asthma, neurological toxicity, reproductive toxicity, cardiac toxicity and birth defects. The five tables list the hazardous air pollutants and the threshold emission rates (or "table value") for each pollutant.

If your emissions of a hazardous air pollutant are above its table value under ch. NR 445, a more detailed review of your facility's emissions is required.

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A review under ch. NR 445 first consists of performing calculations to determine the potential to emit for each HAP emitted from the facility that is listed in Tables 1, 2, 4 and 5. When calculating your "potential to emit" the DNR looks at the emissions from your operations at their absolute highest production level physically possible by their design or as limited by a permit. This shows the worst case impact your emissions might have on the public health and welfare.

Then, if the potential emissions of a HAP are above the table value you will need to do one of two things. Either you will have a ***modeling analysis*** of the emissions performed to show you are below the acceptable ambient concentration, or you can ***cap the emissions*** of that HAP at a level less than the table value and then put the conditions to set that emissions cap level in a permit or other legal document. A cap on HAP emissions may be done by restricting one or more processes, so long as the facility-wide emissions are reduced below the table value.

A modeling analysis is a computer program that is run by DNR staff or by a consultant, who you hire, to predict how your emissions will impact public areas beyond your facility's property boundaries. Each HAP has a standard that indicates at what level its impact is expected to cause health effects. The impact of the emissions shown by a modeling analysis will indicate how close your potential emissions are to that standard. If the impact of your emissions is above the standard, we know the emissions need to be reduced to protect the public and by how much.

A review of table 3 uses the actual HAP emissions to determine if the facility total is below the table value. For example, you may have 5 chrome plating units that each have only 0.5 pounds of Chromium(VI) per year, making your facility total 2.5 pounds per year (lb/yr):

0.5 lb/yr x 5 units = 2.5 lb/yr

The table value in Table 3A is 2.0 lb/yr for Chromium(VI). Since your facility total emissions are greater than the table value, the DNR reviewer would work with you to determine how to meet the Lowest Achievable Emission Rate (LAER), as required by the rule. If the HAP were one listed in Table 3B, the DNR would work with you to determine how to meet the Best Available Control Technology (BACT) which is less stringent than LAER. Usually, control technologies in use by others in your industry would be evaluated to see if they could feasibly be applied to your facility as either LAER or BACT. You, or a consultant you hire, would need to perform the evaluation of these technologies and submit this to the DNR.

If you are required to meet LAER but it is just not feasible for you to install and maintain such high efficiency control equipment, you can request a variance to the control level of BACT. A variance would be given for a period of five years and may be renewed after each 5 year period, upon approval by the DNR. The control technology considered BACT would be less stringent than LAER and should therefore cost less to install. A control technology that is defined as LAER might control emissions by 99.9% while the technology defined as BACT might only have a 95% control of the emissions.

With a variance from LAER to BACT, because you will be controlling a known human carcinogen at a lesser rate than required by the rule, a couple of extra steps are involved. A risk assessment would be performed and a public hearing held to inform those near your plant what greater risk they might have if you install BACT rather than LAER.

A risk analysis is similar to the modeling analysis except that the results are put in terms of the cancer risk. The cancer risk, what you may hear in terms of 1 in 1,000,000 or 1 in 100,000 chance, is meant as “the expected increase in the number of new cases of cancer in each year for all people exposed to the pollutant.”

If the risk analysis shows no significant harm, if there is no significant public concern about the

results of the risk analysis or anything else in the variance request, and you meet all the other requirements then you may be granted the variance to install BACT.

How Would Process Changes Affect My Compliance with NR 445?

Once you have conditions in a permit or other legal document that requires you to cap or control HAP emissions, you may be able to change or eliminate those conditions if your process changes. If you have made process changes that reduce your emissions farther than you were previously required, you may be able to get those conditions revised or eliminated. If you make changes that actually increase the amount of HAP emissions from your facility, a construction permit may be required and more stringent conditions may be necessary to keep you in compliance with ch. NR 445.

The effects of changes can be complex, so you should contact one of the resources below to make sure you are in compliance.

Contacts for More Information or Assistance.

The Small Business Clean Air Assistance Program helps smaller businesses understand and comply with the Clean Air Act regulations. Contact one of the program's Clean Air Specialists for more assistance: Renée Lesjak Bashel at 608/264-6153 or Tom Coogan at 608/267-9214.

For further information on the state HAP rule contact your DNR Regional or Service Center office shown on the **DNR Contact Fact Sheet** or the DNR's Central office at 608/264-9218.